

RECONSIDERATION OF THE THEORY OF RENT

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The question whether rent enters into cost of production or not, or in other words, whether rent determines price, or price determines rent, has been debated over a century and a half. Today we understand that this difference in the opinions lies in the points on which we stand, or the assumptions on which rent theory base. Here the difference in stand-points means that on the one hand, classical economists' idea of rent has been derived from the theory of income distribution, and on the other hand, neo-classical economists have based their idea on the theory of exchange.¹ And the difference in the assumptions means that on the one hand, classical economists' idea has been constructed from the viewpoint of agriculture as a whole, and on the other hand, neo-classical economists' idea from the viewpoint of individual agricultural product to which land has a competing use. So, generally speaking, classical economists have considered that high rent is the result of high price of agricultural product, and neo-classical economists have insisted that high rent is the cause of high price.

In this paper, we wish to put those two different ideas of rent in order from viewpoint of equilibrium theory just as Professors Buchanan and Henderson did it.²

Classical theory of rent

1. Ricardian theory of rent and its historical background

The fact that Ricardian theory of rent has been constructed from the viewpoint of distribution of income among different classes, has some connection with the Corn Law controversy in England in those days. As Cannan says, "we are indebted to the corn law controversy of 1813-15 for the Ricardian theory of rent and distribution in general."³ This controversy was the outcome of following two economic changes. One of them was the change in the agricultural production since the Napoleon War. The other was the appearance of a new class in the result of Industrial Revolution. The Napoleon War gave landlords the natural protection by an economic blockade against the Continent. But they had been given the protection even after the war through imposing high custom duty

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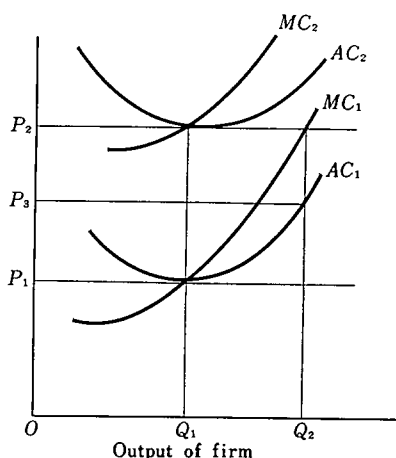
¹ This may be the contribution of Buchanan. cf., Daniel H. Buchanan, "The Historical Approach to Rent and Price Theory" *Economica*, Vol IX, June 1929, reprinted in *Readings in the Theory of Income Distribution*, pp. 599-637.

² Buchanan, *ibid.* Sir Hubert Henderson, "Supply and Demand" *The Cambridge Economic Handbooks*, edited by C. W. Guillebaud, pp. 83-103.

³ Edwin Cannan, *Theories of Production and Distribution*, p. 388.

on imports of agricultural products from the continent. This regulation of supply and the increasing demand for agricultural products in the result of population increase, put pressure of decreasing returns on land, and both the price of corn and the rent of land had been markedly pushed up. In turn this led to raising wages and prices of raw materials, and to squeezing profit. Landowners, an old class, got high rent at the sacrifice of a new class. Then it was natural that the Ricardian theory of rent had been derived from the challenge of a new class against an old class and the distribution of income.

Ricardian theory, as is called differential theory of rent, considers rent as the difference between price and cost, in other words, as the surplus value of products. In this context the price means the average cost of the most unfavorable production under competitive conditions. And the most unfavorable production can be found both in the extensive margin where we cultivate the least fertile land to meet increasing demand for corn, and in the intensive margin where we dose the last unit of captial and labor to a given area of fertile land. The determination of rent can be explained by contemporary apparatus of economic analysis. The figure shows the cost situation of two lands in which areas are equal but



their productivity is different. AC_1 , MC_1 are respectively average cost and marginal cost of superior land, and AC_2 , MC_2 are average and marginal cost of inferior land. When the demand for corn increases and we push extensive margin to inferior land, rent can be obtained only in superior land, and the amount is $OQ_1(OP_2 - OP_1)$. But if a producer behaves rationally, he will dose more capital and labor to superior land, and then we find intensive margin where MC_1 equals the price, and the amount of rent should be $OQ_2(OP_2 - OP_3)$. The reason why all the surplus must be absorbed into rent is that there can not be unequal rates of profit in the competitive industry.

In the Ricardian theory, supply increase in response to demand increase is only possible by the intensive and extensive use of land, and there is no such a case as we shift land which

has been cultivated in one use to other use to increase a particular product. Here we can conclude that the Ricardian theory has been constructed from the viewpoint of agriculture as a whole, and has neglected competitive use of land. If rent is determined as surplus or residual, it is natural that rent is not a part of production cost, but it is determined by price. High rent is not the cause but the result of high price.

2. Adam Smith's treatment of taxation and the theory of rent

If Ricardian theory of rent represents the classical idea, classical economists, we can say generally, neglect the alternative use of land. But here we have two exceptions. They are Smith and J.S. Mill. First we consider Adam Smith. Smith does not have any particular theory of rent, but he considers rent from the viewpoint of taxation. There he admits the case of alternative use of land. He considers the effect of tax on land under two different situations. If the tax on land is in general and has no relation to the particular crop for which the land is taken, "the landlord is in all cases real contributor," and such a tax "has no tendency to diminish and can have none to raise the price of that produce."⁴ And also he considers taxes on some particular products on land, which is specially fitted for only one use, or in other words, which has no alternative use. He says, "a tax upon the produce of which the wine falls so much short of the effectual demand, that its price is always above the natural proportion to that of the produce of other equally fertile and equally cultivated land, would necessarily reduce the rent and profit of those vineyards. The price of the wines being already the highest that could be got for the quantity commonly sent to market, it could not be raised higher without diminishing that quantity: and the quantity could not be diminished without still greater loss, because the lands could not be turned to any other equally valuable produce. The whole weight of the tax, therefore, would fall upon the rent of the vineyards."⁵

From the above discussion we can conclude that when the land has no alternative use, the price is not affected by a tax on land. Or we can say that a tax on land does not enter into the calculation of cost.

But Smith next introduces the case of competing uses. "The rent and profit of barley land must always be nearly equal to those of other equally fertile and equally well cultivated lands. If they were less, some part of the barley land soon be turned to some other purposes, and if they were greater, more land would soon be turned to the raising of barley.

The different taxes which have been imposed upon malt, beer and ale have never reduced the rent of land. The price of malt to the brewer has constantly risen in proportion to the taxes imposed upon it; and those taxes, together with the different duties upon beer and ale, have constantly either raised the price, or what comes to the same thing, reduced the quality of those commodities to the consumer. The final payments of those taxes has fallen constantly upon the consumer and not upon the producer."⁶

Here he concludes that a tax on land which has competing use, is an expense of production and affects the price. Smith does not explicitly say that rent is one component part of the price in competitive case, but that a tax on land is so. But we can say that it is important to distinguish the case of alternative use of land from land in general when we discuss

⁴ Adam Smith, *Wealth of Nations*, p. 313.

⁵ Adam Smith, *ibid.*, pp. 376-377.

⁶ Adam Smith, *ibid.*, p. 376.

the relation of rent to price.

3. J.S. Mill's theory of rent

Mill's theory of rent represents theories in the transition period of the classical theory to the neo-classical theory, as his economic theory does. In the Book 2 of his *Principles*, where he discusses distribution, it can not be denied that he argues rent from the Ricardian standpoint of view. But in the Book 3 where he discusses the exchange theory, he explicitly says that rent of farms makes any part of the price of their produce. "Rent is not an element in the cost of production of the commodity which yields it; except in cases (rather conceivable than actually existing) in which it results from, and represents, a scarcity value. But when land capable of yielding rent in agriculture is applied to some other purpose, the rent which it would have yielded is an element in the cost of production of the commodity which it is employed to produce."⁷

We noted in the earlier part of this paper, that it is important to recognize the difference in standpoints in discussing the relation of rent to price, and Mill also clearly understands this importance. "No one can deny that rent sometimes enters into cost of production. If I buy or rent a piece of land, and build a cloth manufactory on it, the ground-rent forms legitimately a part of my expenses of production, which must be repaid by the product. And since all factories are built on ground, and most of them in places where ground is peculiarly valuable, the rent paid for it must on the average, be compensated in the values of all things made in factories."⁸

Though he reaches to understanding like the above, he never shows the source of rent in the alternative use of land. In this sense, we must say, he is still in the world of the classical economists.

Neo-classical theory of rent

1. Jevons' view of rent

Jevons argues that the case of alternative use of land which is exceptional in Mill's theory, should be general. To him the Ricardian viewpoint, that is, the viewpoint of class distribution of income is out of his interest. As one of the pioneers of the marginal theories, he is interested in the theory of exchange. He maintains that it is inconsistent with his theory not to include rent in the cost of production, although wage enters into the calculation of cost. All factors of production must be allocated in accordance with the same principle. It is the principle of substitution which makes the factors possible to be used in the most favorable sector of the economy. Even in the case of land, it is always possible to shift it to other use like labor and capital. "Now Mill shows that when land capable of yielding rent in agriculture is applied to some other purpose, the rent which would have been produced in agriculture is an element in the cost of production of other commodities. But wherefore this distinction between agriculture and other branches of industry. Why does not the same principle apply between two different modes of agricultural employment ?

⁷ J. S. Mill, *Principles of Political Economy*, p. 479.

⁸ J. S. Mill, *ibid.*, p. 468.

If land which has been yielding £2 per acre rent as pasture be ploughed up and used for raising wheat, must not the £2 per acre be debited against the expenses of the production of wheat? Suppose that somebody introduced the beetroot culture into England with view to making sugar; this new branch of industry could not be said to pay unless it yielded besides all expenses, the full rents of the lands turned from other kinds of culture. But if this is be conceded, the same principle must apply generally; a potato-field as a turnip field; and so on."⁹

The balancing factor of the equilibrium between demand and supply is the shift of production when demand changes unequally among various kinds of products. Ricardo admits the shift of capital and labor among industries, but neglects the shiftability of land. But now Jevons explicitly considers this possibility.

2. Marshall's theory of rent

It can generally be accepted that the kernel of the Marshallian equilibrium analysis is in the principle of substitution. Land shifts to more profitable uses as labor and capital do. Then the rent in any piece of land with same space and quality must be equal in the equilibrium. But if land has no alternative use, there can not be any shift and profitability is not equal.

But because Marshall is also sympathizer with the classical economists, he gives only vague explanation of the relation of rent to price. He answers negatively the question given by Jevons. "Jevons asks: 'if land which has been yielding £2 per acre rent, as pasture, be ploughed up and used for raising wheat, must not the £2 per acre be debited against the expenses of production of wheat?' The answer is in the negative. For there is no connection between this particular sum of £2 and the expenses of production of that wheat which only just pays its way. What should be said is:—'when land capable of being used for producing one commodity is used for another, the price of the first is raised by the consequent limitation of its field of production. The price of the second will be the expenses of production (wages and profits) of that part of it which only just pays its way, that which is produced on the margin of profitable expenditure. And if for the purposes of any particular argument we take together the whole expenses of the production on that land, and divide these among the whole of the commodity produced.' Then the rent which we ought to count in is not that which the land would pay if used for producing the second."¹⁰ If the land has no alternative use, the rent is fixed as the surplus in producing the commodity. But in the case of unspecialized land, "there is, however, a simple numerical relationship: the rent reduced from any one use must equal that from any other possible use, otherwise there is obvious failure to maximize returns and the situation is in disequilibrium."¹¹ The explanation of Marshall where there is alternative use of land is quite difficult to understand. In the same part quoted above, he argues that it is not good to say that rent is not a part of the cost of production, although he maintains that rent does not enter into the cost. The way of his discussion gives us the impression that he is quite confusing and inconsistent.

⁹ W. S. Jevons, *The Theory of Political Economy*, p. 70.

¹⁰ Marshall, *Principles of Economy*, p. 362.

¹¹ Stigler, *Production and Distribution Theories*, p. 94.

Extension of the concept of rent

1. Introduction of the margin of transference

Rent in classical economists is given as the surplus value of the product above cost of production. The amount of it largely depends on the law of diminishing returns. And this law appears both in the extensive margin where we must cultivate less fertile land, and in the intensive margin where we must dose more capital and labor to the given area of land. So the differential rent can be derived from above two margins.

On the other hand, rent in neo-classical economists is generated from the shift of land to competing uses. This shift is motivated mainly by the profit maximization and the principle of substitution. Then where can we find the source of the rent analogous to the classical extensive and intensive margins?

The reason why land shifts to competing uses is that there are differences in profitability among various uses. In this situation, "units of the supply of a particular commodity are on the margin of not being produced at all because land shifts whenever it has a chance, other things being equal, of getting a better return."¹² This margin is called 'product-changing margin' by Buchanan. But the man who introduces the third margin is Henderson, and he calls it 'margin of transference'. According to his explanation, "it need hardly be said that the land will, as a general rule, be put to use in which its value is greatest; or to speak more strictly, in which the biggest rent, or the biggest selling price can be obtained. But the notion of the differential advantages which a piece of land possesses over the marginal land becomes decidedly more complicated when we take account of this variety of uses. Let us turn our attention, for instance, to the sites used for shop and office purposes, and consider what we can regard as the marginal site in this connection. Clearly it will not be the marginal land of which we spoke above, which it only just paid to cultivate, and which yielded no rent at all. For this will probably be agricultural land in an out-of-the-way district, where no one would dream of setting up an office or a shop. Any site upon which a sane man would contemplate setting up a shop will certainly possess value for other purposes, such as house-building. Hence the marginal site for shop-keeping purposes will not be like our marginal farm, a site which yield no rent." In other words, margin of transference is not like intensive or extensive margin where rent is zero. Then in what situation can this margin be found? "As regards many pieces of land, there is no doubt as to the purposes for which they can most profitably be used. This price will command a much higher rent as a shop site than in any other capacity; for that piece house building is the obvious employment; for another, agriculture. But in quite a number of instances there is considerable uncertainty. It is not clear whether upon this site it will be better to erect a house or shop, or if the latter, what kind of a shop. It is not clear whether it will pay to use that farm land for a building scheme; and within the domain of agriculture, which of course comprises an immense variety of really different industries, it is often a very moot point indeed whether a certain field should be left under grass, or brought under the plough. Cases of this sort are not phantoms of imagination; they emerge on every site as concrete problems with which

¹² Buchanan, *ibid.*, p. 632.

some or other is dealing every day, and it is these cases which constitute the marginal land for the purposes of a particular occupation."¹³ "Between any two occupations there will thus usually be a margin of transference, which we must conceive not as a point, but as an irregular line, upon or near to which there will be many pieces of land, differing greatly in the rents which they fetch. These variations of rent will correspond to the differences between the advantages or derived utilities which the sites possess for both the occupations in question. The position of such margins of transference will of course alter as industrial conditions change, and, when they alter, the rents of sites which are not near any margin of transference will be affected also. Thus an increased demand for the products of any particular industry will make it profitable for that industry to offer higher rents, and thus draw land away from other occupations. This will have the effect of raising, though possibly to a very slight extent, the rents of sites which still remain other uses."¹⁴

From the above discussion, we can say that the margin of transference would emerge in the disequilibrium situation where profitability among different uses is not equal. Those which bring inequality are the changes in the industrial conditions and demand for products. Hitherto we have not paid attention to the fact that land would shift to competing uses, because it is a sort of real estate having a character of immovables. But in reality land has alternative uses as a labor and capital have. Moreover, once the capital equipment being constructed, it must be used for particular purpose, and it is impossible for capital to shift. However, land does not have such a character as a capital even in the short run. Like today when the changes in industrial conditions often happen, rent must be largely formed through transfer margin.

2. The relation between rent and price

It is now clear that rent in the sense of the classical economists is determined by price and it does not enter into the calculation of cost. Then in what sense does rent in the meaning of the neo-classical economists fix price and form the part of production cost?

In the earlier part of this paper, we noted that rent must be cost element from the viewpoint of industrial product. The reason is that a farmer would be rejected to borrow a piece of land by landowner if he would not pay rent the amount of which landowner would ask. Then he must cover the rent including it in the cost of production. Now let this required amount of rent be just equal to the amount being determined by differential rent. How can we say? We can say that rent is a part of cost or it is determined by price either. The question is not essential here. Rather the point is why a landlord rejects to lend a piece of land. The reason is that because land has alternative uses, landlord would not content with rent in one use which would be higher in other uses. So the differential rent which is generated from a particular use can not be a basis of calculation of rent in other uses. In other words, when we say that rent is a part of production cost, it is the rent emerging from the transfer margin. This rent can generally be called opportunity cost. Because we look at the situation where land in one use is not shifted to other uses, the higher profit in other uses is the profit which could be earned but which was not realized. And this profit must be included in cost under the condition of free competition.

Here we must pay attention to the fact that rent emerging from transfer margin can

¹³ Henderson, *ibid.*, p. 95-96.

¹⁴ Henderson, *ibid.*, p. 96-97.

be generated in the disequilibrium situation or in the process to equilibrium. If changes in industrial conditions and demand conditions equally affect each sector in the economy, we must use land extensively and intensively. In other words, in the imagined economy where relative prices are always constant, the rent is determined by the difference between price and cost. Here we can have the classical theory of rent from the viewpoint of equilibrium theory. Then in the case of equilibrium growth all the rent can be explained by differential rent. But in the disequilibrium situation, how can we define differential rent? It is defined as "a surplus accruing to any unit of a factor of production over and above the income just necessary for keeping that unit in its occupation." In the equilibrium situation "the income required to keep the resource in its occupation is zero."¹⁵ Here we can have pure classical rent.

Thus it is not correct to explain the relation between rent and price only from one point of view. But in the real world it is better to consider disequilibrium situation. In this sense we should say rent is partly the cost (transfer rent) and partly it is determined by price (differential rent).

¹⁵ William Fellner, *Modern Economic Analysis*, p. 76.